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Original article

## A randomised trial of knife versus diathermy in pilonidal disease

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**Background:** Pilonidal disease is a common debilitating condition. This prospective randomised study compared excision of pilonidal disease with a scalpel or diathermy with respect to operation time, postoperative pain, functional recovery and wound healing.

**Patients and Methods:** Patients undergoing surgery for pilonidal disease were randomised to excision by scalpel (group 1) or diathermy (group 2). Patients received regular peri-operative oral analgesia and a standardised general anaesthetic technique. Duration of operation was recorded. Following surgery, pain, analgesic requirements, sedation, nausea and vomiting scores and time to mobilise and time to complete healing were compared.

**Results:** Statistical significance between groups was obtained for five outcomes after 32 patients had been recruited; of these, 81% were admitted as emergencies with an abscess. The duration of surgery in group 2 was significantly less, postoperative pain scores and morphine requirements were lower and mobility was regained sooner.

**Conclusions:** We advocate the use of diathermy needle rather than scalpel blade when undertaking excision of pilonidal disease in both acute and chronic patients.

**Key words:** Pilonidal disease – Randomised trial – Knife versus diathermy

Pilonidal disease is a common, potentially debilitating condition frequently affecting the sacrococcygeal region of young adults. Presentation may be with chronic sinuses or following abscess formation. Treatment options are numerous,<sup>1,2</sup> but no evidence overwhelmingly supports one specific technique, each having inherent advantages and disadvantages. Excision of pilonidal disease followed by wound healing by secondary intention is one accepted treatment option.<sup>1</sup> We conducted a prospective randomised trial comparing knife and diathermy excision of pilonidal disease and assessed operation time, postoperative pain, functional recovery and wound healing.

### Patients and Methods

Following ethical committee approval, patients undergoing emergency and elective excision of pilonidal disease were recruited. After obtaining informed consent, patients were prospectively randomised by computer to group 1 (scalpel), or group 2 (diathermy). The diathermy excision was performed using a monopolar needle point with coagulation at level 9 (Eschmann TD41 I RS, Eschmann Equipment, West Sussex, UK).

All patients received oral paracetamol (15 mg/kg) and diclofenac (1.5 mg/kg) pre-operatively, which was continued

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Table 1 Symptom scoring systems

Symptom	Score											
Pain	0	1	2	3	4	5	6	7	8	9	10	
	None			Moderate				Very severe				
Sedation	1			2				3				
	Awake			Drowsy				Asleep				
Nausea & vomiting	1			2				3				
	None			Nausea				Vomiting				

regularly postoperatively. A standardised general anaesthetic (propofol induction, laryngeal mask airway, maintenance with nitrous oxide 65%, oxygen 35% and isoflurane MAC < 1.0) was administered. Patients were operated on in the left lateral position by the allocated technique and the cavity dressed with paraffin gauze and saline-soaked dressing gauze covered by a pad. The duration of the surgery was recorded. During the first 24-h postoperatively, visual analogue pain scores (on a hidden 0–10 linear scale), sedation score and nausea and vomiting score were recorded at 15 min intervals for the first hour then at 2-hourly intervals (Table 1). If necessary, 50 mg of cyclizine was given as an anti-emetic and intravenous morphine (0.1 mg/kg) was administered for additional analgesia as required. The dressing was changed at 24 h to Kaltostat (ConvaTec Limited, Uxbridge, UK), and daily for 7 days.

The cavity was then dressed with Cavicare (Smith & Nephew Healthcare Limited, Hull, UK), and the dressing changed weekly until healed by secondary intention.

Patients were discharged when safely mobile and when pain was adequately controlled by oral analgesia. Follow-up was performed weekly until the wound was healed.

An initial power calculation (<<http://www.dssresearch.com/SampleSize>>) based upon previous similar studies indicated that 60 patients would be sufficient to produce a power of 0.8. Statistical analysis was performed using the Mann-Whitney test with a *P* value of less than 0.05 considered significant.

## Results

Statistical significance between groups 1 and 2 was obtained for five outcomes after recruiting 32 patients (16 in each group) with a consistent trend throughout the study. There were 30 (93%) males and 2 (6%) females, median age 26 years (range, 18–38 years). Emergency admissions with pilonidal abscess accounted for 26 cases (81%), with 12 in group 1 and 14 in group 2. The median operation duration was 15 min (range, 5–25 min) in group 1 and 5 min (range, 4–18 min) in group 2 (*P* = 0.002). There was one postoperative reactionary haemorrhage in group 1 that necessitated a return to the operating theatre within 4 h: this did not delay patient discharge.

Postoperative visual analogue pain scores and morphine requirements within the first 24 h were significantly lower in the diathermy group as was pain at the time of dressing change. Patients undergoing diathermy excision were also observed to mobilise more rapidly. There was no significant difference in sedation score, nausea and vomiting scores, hospital stay or healing time (Table 2).

## Discussion

Diathermy is used increasingly for incision and tissue dissection. Concerns regarding excessive scarring and poor wound healing have not been substantiated by

Table 2 Comparison results for knife and diathermy excision of pilonidal disease. Median values are shown

	Group 1 Knife ( <i>n</i> = 16)	Group 2 Diathermy ( <i>n</i> = 16)	<i>P</i> value
Median operation duration (min)	15 (SD 4.7)	5 (SD 4.4)	0.002
Median total visual analogue pain score over first 24 h	16 (SD 3.4)	5 (SD 6.5)	0.01
Median visual analogue pain score at dressing change	3 (SD 1.7)	1 (SD 1.0)	0.004
Median total 24-h morphine requirements (mg/kg)	9 (SD 3.9)	0 (SD 2.5)	0.048
Median time to mobilise (h)	6 (SD 3.0)	2 (SD 0.9)	0.002
Median total sedation score over first 24 h	10 (SD 1.6)	9 (SD 8.6)	(0.093)
Median total nausea & vomiting score over first 24 h	3 (SD 1)	2 (SD 1)	(0.07)
Median time to healing (weeks)	4 (SD 2)	4 (SD 1)	(0.763)

recent studies of skin incision<sup>4</sup> which have shown faster operating times, reduced blood loss and early post-operative pain and lower analgesia requirements with diathermy compared to scalpel incision.

Excision of pilonidal disease with healing by secondary intention is associated with a shorter hospital stay and may result in lower infection and recurrence rates<sup>5</sup> although opinion varies regarding optimal treatment.

In this study, diathermy excision of pilonidal disease was associated with a shorter operation time largely due to the intrinsic haemostatic effect of diathermy. Differences were more marked than predicted during study design. The lower visual analogue pain scores and morphine requirements during the first 24-h postoperatively may be a consequence of the full thickness burn produced by diathermy excision, with cauterisation of nerve endings and also account for lower pain scores at the first dressing change. These factors contribute to promote postoperative patient mobilisation without adversely affecting healing time. There was no difference in the healing time, supporting previous studies.<sup>4</sup>

## Conclusions

We advocate the use of needlepoint diathermy for the excision of pilonidal disease in both the emergency and

the elective patient. This effective and safe technique has significant advantages over scalpel excision in terms of operation time, reduced postoperative pain, analgesia requirements and mobilisation.

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## References

1. Aydede H, Erhan Y, Sakarya A, Kumkumoglu Y. Comparison of three methods in surgical treatment of pilonidal disease. *Aust NZ J Surg* 2001; **71**: 362–4.
2. Kitchen PR. Pilonidal sinus: experience with the Karydakis flap. *Br J Surg* 1996; **83**: 1452–5.
3. Al-Hassan HK, Francis IM, Neglen P. Primary closure or secondary granulation after excision of pilonidal sinus? *Acta Chir Scand* 1990; **156**: 695–9.
4. Kearns SR, Connolly EM, McNally S, McNamara DA, Deasy J. Randomized clinical trial of diathermy versus scalpel incision in elective midline laparotomy. *Br J Surg* 2001; **88**: 1129.
5. Fuzun M, Bakir H, Soylu M, Tansug T *et al.* Which technique for treatment of pilonidal sinus – open or closed? *Dis Colon Rectum* 1994; **37**: 1148–50.